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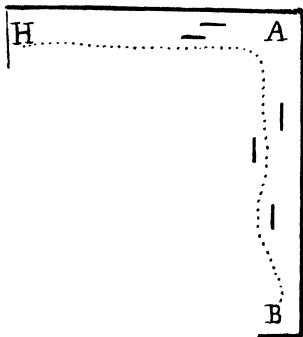
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## THREE ODD INCIDENTS IN ANT-LIFE.

BY ADELE M. FIELDE.

## 1. A case of hypnotism among ants?

I had a small artificial nest containing twelve workers of *Cremastogaster lineolata* that had spent the first month of their lives in a mixed colony of *Lasius latipes*, *Stenamma fulvum* and their own kind. They had then been transferred to their present abode, where they had lived for eleven months, never meeting ants of other species, except upon a few rare occasions when I introduced a visitor into their nest. On August 20, 1904, they were happily occupied in care of some promising pupæ from their old wild nest, when I dropped into their nursery a single *Lasius latipes*, somewhat larger and probably older than any of their number. She was a stranger from the wild nest of their quondam associates. As I dropped the strong-smelling, vigorous yellow worker into their nest, I glanced at my watch to note the minutes they would spend in slaying the intruder. When I looked back at the ants, I was at once impressed by the curious and sudden change in the positions of all the little black *Cremastogasters* and by the remarkable rigidity of five of them. Five were in the food-room, and they do not enter further into this narration; two were on the roof-pane of the nursery;



The straight lines indicate the sides of the nest; the dotted line the path of the yellow ant; the dashes the positions of the five black ants.

and five were motionless under the touches of the *Lasius*, who, instead of fleeing or hiding, as do ants who are among enemies outnumbering them, was traversing two sides of the nursery at a leisurely-rapid pace from the hallway, marked H, to the corner marked A where there was a little pile of pupæ, and then on to the B corner where was a similar pile. She made more than eleven journeys to and fro, taking nearly the same track, sometimes walking over an ant or two, sometimes brushing the side of one as she passed, sometimes slightly varying her route so as to pass between two on the A B side of the nest. Whatever her course, every ant of the five swayed the abdomen slowly toward her as she passed, and swayed it back as soon as she had passed it. This swaying of the

abdomen, with slight movements of the antennæ, were the only signs of life given by any of the five ants during forty-five minutes. Meantime one of the other residents came down from the roof-pane, and while the yellow ant was at H with the heads of all the spellbound ones turned away from her, this solicitous sister went and touched three of the entranced ones, but failing to rouse them, she withdrew again beyond the line of the yellow visitor's march. I was observing the ants through a pane of orange-tinted glass which protected them from such light as they were aware of, and I several times lifted the pane, letting the daylight fall full upon them, but even this stimulant did not impel any of them to move.

During all this time none of the five ants that were in the food-room returned through the only ingress therefrom, the hallway H, and the young, ordinarily attended upon without intermission, were wholly neglected. The yellow ant finally stayed awhile in the hallway, and within the ensuing five minutes all the three ants between A and B began to walk slowly forward. I then shoved the other two with the end of a needle, and they also moved slowly about.

I did not again look into this nest until the following morning, when I found the yellow ant dead, and carried to the rubbish pile. I then introduced another ant of the same colony and of the same appearance, but this second ant was no *Svengali*, and only the expected thereupon happened.

Yet another, introduced later, came in like manner to an immediate and violent death.

## 2. A wolf in sheep's clothing?

I had in August, 1904, a nest of *Cremastogaster lineolata*, containing one queen, a hundred workers, and much young in the egg, larval and pupal stages. These ants had been in my care during all their lifetimes, and I know that they had never met *Lasius latipes* in active life. In the previous June I had introduced into their nest a half-teaspoonful of the larvæ of *Lasius latipes*, for them to use as food, and this alien larvæ had been taken care of, had become pupæ, and had gradually disappeared. On August 21 there hatched from what was perhaps the last of these alien pupæ a tiny *Lasius*, that the *Cremastogasters* permitted to live. Its bright amber-yellow body was very conspicuous among its jet-black associates. During several days the infant *Lasius*, of a different subfamily from its foster-sisters, shared their labors and passed unnoticed among them, and then it was nipped to death.

It is probable that this *Lasius*, having been long among the *Cremastogasters*, had acquired an overlaying of their inherent odor, concealing its own, and that it thereby escaped hostile attack until such time as it

inherent odor became subject to the critical examination of an associate or of the queen. Then instinctive race-prejudice impelled the *Cremastogasters* to eliminate from their community one whose education had already been such as to secure them from injury through her misbehavior.

3. Can an ant remember acquaintances after lapse of three years or more?

In August, 1904, I had a nest of *Camponotus pennsylvanicus*, containing some larvæ and fourteen large workers, all of whom had hatched in my nests between May 1 and May 10, and who were therefore about three months old. They had spent the first two months of their lives with *Stenamma fulvum* ants who were from seven to nine months old, and they had not met ants of other species. They had been segregated about one month, when I dropped into their nest two *Formica lasiodes* of unknown age, several newly hatched *Stenamma fulvum* of the C colony, two adult *Stenamma fulvum* of the X colony and two *Stenamma fulvum* that were more than three years old, having been captured as adults and kept three years in one of my artificial nests, a section of the C colony. From the first introduction of these ants to the nest of *Camponotus*, one of the three-year-old *Stenammas*, who was of the same colony, as were the early acquaintances of *Camponotus*, went freely and happily among them, apparently without fear and without reproach. She was permitted to stand among or upon the cherished larvæ, or on the backs of the resident ants. The affiliation between her and them was as complete as if she had always lived among them. Her odor may have become familiar to them in the nest of *Stenammas* where they had spent their early lives. But if this *Stenamma* had ever been acquainted with *Camponotus* it was at a time previous to her residence in my artificial nests, and more than three years since she had met any ant of other species than her own. The remarkable ease and friendliness of her intercourse with these ants, among whom she was as a brown pigmy among black bristly giants, is a fact requiring explanation; and the only explanation offered by known characteristics of ants lies in her recognition of an odor that she had previously encountered, and that she recognized the odor after the lapse of more than three years.

All the other ants introduced at the same time as was this *Stenamma* were killed by the resident *Camponotus* within a few hours. The *Stenamma* continued to live among the *Camponotus* until I removed her at the end of eight days.

The incidents were observed at the Marine Biological Laboratory at Wood's Hole, Massachusetts.